

## Selection of functional lactic acid bacteria as starter cultures for the fermentation of Korean leek (*Allium tuberosum* Rottler)

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**A**llium tuberosum Rottler (Korean leek) is an edible plant which is usually served in Korean or Chinese dishes. The leaves of the leek plant are used not only as a raw material for food fermentations such as kimchi, but also as a medicinal herb for the treatment of abdominal pain, diarrhea, hematemesis, and asthma. Although benefits of leek and fermented leek were reported, there was no research about starter cultures for leek fermentation. The purpose of this research was to find safe and suitable starter cultures for fermentation of Korean leek. Fermentation of leek leaves was performed with 2 strains isolated from leek kimchi, selected as potential starter cultures of which the safety features were also determined. Microbial dynamics were followed by using PCR-DGGE (Density Gradient Gel Electrophoresis) on DNA level. Bioactive compounds were analyzed by colorimetric methods. Finally, anti-oxidative capacities including 2, 2-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging effect, and ferric reducing antioxidant power (FRAP) were used to evaluate specific functional properties. *Weissella confusa* LK4 quickly dominated during leek fermentation, and was mainly responsible for accelerated fermentation. After 48h fermentation, fermented leeks with *W. confusa* LK4 showed the highest radical scavenging effects and reducing ability. The detectable amount of allicin of fermented leeks decreased and correlated with the change in pH, whereas concentration of thiols significantly increased. Total flavonoid and poly-phenol contents changed during fermentation and showed correlation with anti-oxidant effects. We therefore suggest the suitability of *W. confusa* LK4 as a functional starter culture for fermentation of leeks.

### Biography

Jae Sik Yang has completed M.Sc. from Handong Global University, South Korea in 2013. Currently, He is working as a researcher at National Academic of Agricultural Science, RDA in South Korea. He studies development of starter cultures with LAB or AAB, and functional properties of fermented foods. Presently, he is looking for an opportunity to continue with a PhD course at a University either in Europe or North America.

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